

-37-

1 **VARIABLE TEMPERATURE SEAT CLIMATE CONTROL SYSTEM**

5 Abstract:

A temperature climate control system comprises a variable temperature seat, at least one heat pump, at least one heat pump temperature sensor, and a controller. Each heat pump comprises a number of Peltier thermoelectric modules for temperature conditioning the air in a main heat exchanger and a main exchanger fan for passing the conditioned air from the main exchanger to the variable temperature seat. The Peltier modules and each main fan may be manually adjusted via a temperature switch and a fan switch, respectively. Additionally, the temperature climate control system may comprise a number of additional temperature sensors to monitor the temperature of the ambient air surrounding the occupant as well as the temperature of the conditioned air directed to the occupant. The controller is configured to automatically regulate the operation of the Peltier modules and/or each main fan according to a temperature climate control algorithm designed both to maximize occupant comfort during normal operation, and minimize possible equipment damage, occupant discomfort, or occupant injury in the event of a heat pump malfunction.

25

30

35